

# I N T R O D U C T I O N

**H**IDDEN DEEP IN the viscous gloom of Guyana's tropical rainforest are two monster waterfalls: Kaitour on the Potaro river and Orinduik on the Ireng. No maps show the faint, foot-narrow trails that connect them. They are known only to the Patamona Indians who live here, and a few miners – Portuguese in origin – who set up solitary camps deep in the bush to pan for gold and dig for diamonds. Kaitour, almost five times higher than Niagara, I'd first seen from the co-pilot's seat of a twin-engined Islander plane, flying with a prospector up to his camp on the Venezuelan border. We'd been following the Potaro river, which from the air cuts a series of wide, lazy, muddy loops through the dense canopy of trees. The green stretches from horizon to wild horizon, broken only occasionally by shocking red, where a vast tree explodes into bloom. On a whim, the pilot had brought the plane down low over the great arc of the Kaitour fall, and landed it on a makeshift strip that he sometimes used, cleared from the bush. Beating our way through scrub, the noise of the fall dumbing any possibility of thought, we'd emerged by the wide, flat river at the very point where it throws itself off the edge of the world to land 820 feet below, in a narrow, rocky chasm of awful savagery. Rainbows made and remade themselves in the spray that hung in the valley beneath the lip of the fall. Swifts darted behind the pounding curtains of water to the nests they had built on the rock face behind. Bromeliads and orchids shivered in the turbulence created when the torpid bulk of the river suddenly broke on the rim of the escarpment. Free of its bulk, it became air and prisms. Liberated, it flew. Here I learned of Guyana's second great waterfall, Orinduik, and of the trail that was said to connect it with

Kaitaur. The pilot did not know of anybody who had walked it, but a week, he thought, would do it, if we could find Amerindian guides to take us.

So that is why, six months later, I am stumbling, disorientated, through the filtered gloom under the canopy of this same rainforest. In front of me, a snake in a perfect camouflage jacket stretches out over the trail, motionless, disregarding. Without the warning from our Patamona guides, I would not have seen it. What sort of snake is it? I don't know, but they are indicating I need to treat it with the careful respect that they have shown. I know nothing here. I depend on the guides entirely. There are no roads, no signposts, no indicators. I don't know where we are, which way we are facing, how far we have travelled, how much further we will be going before our two companions decide to set up camp for the night. To 'How far?' or 'How long?' questions, they give the same elegant, liquid wave of the arm. That way. In time. So we continue to slither, and climb, and slip, and creep, and wade, and swim, and trip, and fall, and curse, and swing, and jump our way through this outlandish territory. Though so evidently familiar to our Amerindian guides, it is a world as strange as Mars to me.

Our route seems to be following the Potaro river upstream, perhaps to a point where it meets the Kopinang. The river is usually hidden by impenetrable curtains of growth, but I can sometimes hear it, crashing over rapids or surging through a narrow chasm of rock. If it was navigable, we'd be navigating it, in the narrow dug-out canoes that the Patamonas excel in making. Water is easier to travel over than land. When there is no river noise, the forest is oddly quiet; few birds, the two guides moving in absolute silence through this world of theirs. Only once do they shout, when a group of jaguars cross the track in front of us with the self-contained, intent look of hunters on a mission. Early one morning, though, a strange sound passes through the forest, high, as though caught in the web of the treetops. The noise swells and falls away, swells and falls away, like some great animal gasping for breath. It is pitched low and in a minor key, and it wraps all around us, ghostly and insubstantial, ebbing and flowing. But what can be making such an unearthly sound? Howler monkeys? Baboons? I can't see them moving through the canopy. If I could, at least one question would be answered and I would feel less adrift in this world that I can't interpret or understand.

Occasionally we meet a hunter in the forest with bow and quiver of poison-tipped arrows. Sometimes an entire family passes by: babies, cooking pots, hunting dogs, bags of farine. I watch a child, three years old at most, running barefoot over a river on a fallen tree, the only bridges that exist here. It is set high over a boiling torrent of water, impossible to swim across, and the damp, mossy log has no rope sides to it, no handholds. It is like a tightrope. These log crossings terrify me more



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than anything ever has in the whole of my life. We do perhaps a dozen a day. I have nightmares about them; I wake up kicking and screaming. I do not have the physical skills I need to survive here, but I'm disorientated in a mental sense too. Born and brought up in a temperate country, I'm lost here in the tropics where no living thing in this complex, interwoven understorey has a name that I know.

I reach out to pick a leaf, which is about the size of a hazel leaf, though more leathery and tough. I think it is the one that soothes the bite of a cabouri fly. But is it though? Or is it the leaf that I was warned never to touch, even fleetingly, for fear that my heart would stop, right there on the track, because of the poison it contains? What are the distinguishing, the essential, differences between the two plants? Someone, somewhere has worked these out, set them down, commissioned drawings, published descriptions, assigned each plant a place in a particular family, christened them with a two-part name that shows its botanical genus and its species. The taxonomist, the namer of names, will have described the plant's characteristics, explained its kinship with other plants in the same family, shown how, through some minute distinction, perhaps veining on the leaf, hairs on the stem, habit of growth, it is not the useful, medicinal leaf I thought it might have been, but the powerful drug. This work has transmuted local knowledge of plants, critical to the survival of indigenous people anywhere, into a comprehensive system of naming, of ordering and classifying, which now embraces every known plant in the world. But I am here without access to this knowledge, able only to define plants as they were defined in the Middle Ages in Europe – by their usefulness, their potential for food, medicine or magic. If I lived here, I too would learn to pick out the particular saplings that the Amerindians use to make their overnight shelters. I would also recognise the tree that produces the invaluable gum which our companions use as firelighters. In the pouring rain, as darkness falls, with a pile of wet sticks for a cooking fire, a small ball of this gum provides an infallible flame. Salvation. But nobody else, not even the Macushi or the Wai Wai, Amerindian neighbours, would recognise the name that the Patamona people use to describe it.

We do the final leg of the journey to Orinduik by boat, down the Ireng river. The canoe shoots through the rapids, while with wild cries the two oarsmen stem the current either side and the bowman, with a long pole like a quant, tries to keep the bow of the boat pointing in the right direction. Sometimes he loses it and the boat spins round and round like a leaf in the current, until the river spits us out of the rapids into calmer water. At Orinduik, the river fractures into different branches, pouring over steps of jasper and pure crystal. That night there is a storm somewhere over the mountains. We had arrived with a full moon and now sit with the waterfall thundering in our ears, watching that great glimmering disc haul itself up over

the mountains into a hemisphere thick with stars. Opposite the vast moon, sheets of lightning throw into relief the jagged rims of the Pakaraima mountains.

In a tiny chartered plane, we leave the great Orinduik and fly out again over the canopy of trees. Sitting in the co-pilot's seat, looking down on this mass of green, I finally regain some sense of my relationship to the natural world. Following a ravine and the river as it tumbles over the rocks, we fly towards the sun, drifting over a landscape of huge flat-topped mountains that loom like islands from the sea of the forest. We have spun a thread between the two waterfalls. Gazing out from the Piper as it winds its way through this Conan Doyle *Lost World* landscape, I am as happy as I have ever been in my life.

On the morning of 13 July 1629, Thomas Johnson (c.1600–1644), newly qualified apothecary, is waiting in the churchyard of St Paul's in the City of London. He is twenty-eight years old, has left his shop, just recently set up in Snow Hill at the sign of the Red Lion, and is about to embark on a journey into Kent with some carefully chosen companions from the Society of Apothecaries. The purpose of the expedition is to make a list of the plants that grow in that county, the first step in preparing a complete account and description of British plants, a British flora, which does not yet exist. Various herbals have been published in Latin and English, including Gerard's notoriously unreliable work of 1597, but they have all been translations, amalgamations of Italian and Flemish plant books. Though some of these European plants are to be found in Britain too, English plantsmen struggle to match the descriptions printed in the bowdlerised herbals with the plants they gather from quite different habitats in Britain. The apothecaries have a particular need to sort, name and categorise indigenous plants. Medicine is their business and plants the raw material from which they brew, distil and decoct their elixirs and tonics. Licensed by their Society, they are the only people allowed to prepare and sell medicine, but they themselves are dependent on the herb-women who collect and sell the raw materials. Are they being duped? Are they being fobbed off with cotyledon when they think they are buying umbilicus? Johnson believes they are. 'Almost every day in the herb market', he writes,

one or other of the druggists, to the great peril of their patients, lays himself open to the mockery of the women who deal in roots. These women know only too well the unskilled and thrust upon them brazenly what they please for what you will . . . Is not the fate of patients who rely upon the help of such doctors and druggists pitiable? For the doctor relies on the druggist and the druggist on a greedy and dirty old woman

Alexander Magnus.

Mercurig.

169.



HerenDexter Admiral.

Belle Briant.



Orange Prefent.

Hugonot.



Plate 2: Various named varieties of pinks (possibly derived from *Dianthus caryophyllus*) from German drawings of the seventeenth century collected by Christian Wenzel van Nostitz-Reineck

with the audacity and the capacity to impose anything on him. So it often happens that the patients' safety depends on the herbal knowledge of an ignorant and crafty woman.<sup>1</sup>

So here is Johnson, after an eight-year apprenticeship in his profession, setting out with some fellow apothecaries on the first of a series of journeys to familiarise himself with the country's native plants. The party hopes to get as far as Rochester and Gillingham, returning by way of Dartford. They have no map (the first large-scale guide to the area will not be published until the eighteenth century) though Philip Symonson had made a rudimentary plan of Kent in 1596, an aid to navigators on the river and round the coast, marking the position of various parish churches and showing whether they had steeples or towers. There are few roads for travellers to take, no signposts and a great deal of mud. The fastest highway into Kent lies along the River Thames and that is how Johnson and his party plan to get themselves as far as Gravesend, on the south bank of the river. At this point the Thames begins to swell into the wider estuary that eventually brings it into the North Sea.

'Hurrying to the river's bank', as Johnson writes, the party hires two boats for the first part of the journey. But, 'battered by the violence of the weather', the boat carrying Johnson's friends, Buckner, Buggs, Weale and Larking, has to turn aside to Greenwich to ride out the storm. Johnson and the other half of the party land safely at Gravesend and continue on by road to Rochester, crossing the fine stone bridge built 'with the spoils of France' by John Cobham and Robert Knowles in 1387. At the Bull Inn in Rochester, Buckner, Buggs and company finally catch up with them. When the storm had passed over, they had set sail again from Greenwich, but the tide was falling and their progress slow, so they left the boat at Erith and, picking up horses at Gravesend, rode fast for Rochester. 'We were all happy', writes Johnson, 'and had supper together.' Afterwards they make lists of the plants they find growing in the garden of the inn: tobacco, rosemary, day lily, lungwort, sage and wallflower.

Next morning, they make their way to Chatham, where the British fleet is lying at anchor, 'the best appointed fleet that ever the Sun saw' as the historian William Camden described it in *Britannia* (1586). They get permission to go aboard the *Prince Royal*, which at 1,200 tons is by far the biggest naval vessel in England. She is still quite a new ship and Johnson is impressed. 'Sixty-six bronze cannon of the larger size,' he records after his visit. 'It is so notable in its build, its size and magnificence, and it so surpasses all expectation that I dare not describe it.'<sup>2</sup> After dining at Gillingham and plant-hunting in the cemetery, Johnson and his party cross the river and install themselves in two inns at Queenborough on the Isle of Sheppey. Their arrival (they were a relatively large party) is noted with suspicion by the mayor,

who sends for them and asks them their business. Self-importantly, the mayor proclaims the 'great and far reaching privileges' granted to him, the better to protect the Sheppey islanders from injury. It is his duty, he insists, to discover the cause of their journey. Smuggling and piracy is rife. And then there are the oysters, the chief source of Queenborough's wealth. Is the party perhaps planning an illicit raid on the Queenborough oyster beds?

John Buggs, who a few years later would be thrown into prison for practising, without a licence, as a doctor, explains that, as apothecaries, the group is 'devoted to the study of the science and material resources of medicine'. They have come, he continues, to see for themselves the rare plants that they have heard grow on the island of Sheppey. Jonas Styles tries a different approach. They have come, he says, because it gives travellers such as themselves an unrivalled opportunity to meet with a man of such merit as the mayor, a captain of the Royal Fleet, well versed in seamanship. Without a trace of shame he tells the mayor how 'especially gratifying' it is to him to become acquainted with 'so eminent' a man. 'By these and suchlike words', records Johnson, 'the Mayor was entirely satisfied.' He offers them beer, drinks their health, discusses medical and naval matters with them. With his blessing, the party moves on to Queenborough Castle, collecting wall rue (*Asplenium ruta-muraria*) from its crumbling walls. On the shore at Sheerness they find horned poppies, grey-leaved *Crambe maritima*. They collect starfish and the flat white carcasses of cuttlefish.

From Sheppey, the furthest point of their journey, Johnson and his friends hire a barge to take them across the Medway river to the Isle of Grain opposite. Flat, windswept and featureless, the rounded promontory of the almost-island separates the Medway from the Thames to the north. It is a low point in the Kentish adventure. 'After leaving the little ship,' Johnson writes, 'we walked five or six miles without seeing a single thing that could give us any pleasure. The road ran along the water's edge. In the heat of the day we were tormented like Tantalus with a misery of thirst. We were in the midst of waters, but they were brackish. We were equally afflicted with hunger in that inhuman wilderness, where there was no town within reach, no smoke to be seen, no barking of dogs to be heard, none of the usual sights of habitation by which we could arouse our fainting spirits to any breath of hope.' There were not even any plants of interest.

Exhausted, they arrive finally at the little village of Stoke. When dinner has been set and served, the whole company (with the exception of Styles and Johnson) boards a brewer's dray to hitch a ride to Rochester. Leaving their comrades 'lolling among the barrels in the wagon', entrusted to the care of the drivers, Johnson and his friend strike out west through the hamlet of High Halstow, past Cooling Castle, and spend the night in an inn at Cliffe. It is a productive foray, for they collect



The artist's name



A.M. 3267. 56.

*demonstratus*

V. A. M.

many new plants (including cannabis), a high proportion of them never before noted as British natives.<sup>3</sup> On the steep hillsides around Cliffe itself, though, they find nothing that they have not previously seen, so they alter their course and move down to the saltings east of Gravesend. There they find hollyhock and the strawberry-headed clover, named *Trifolium fragiferum* by the great French botanist, Clusius.

Passing through fields of rape, harvested with sickles, Johnson and Styles arrive again at Gravesend, where they wait for news of their 'waggoner comrades'. While they are eating dinner, Thomas Wallis arrives on a horse he has hired at Rochester. Leonard Buckner and Job Weale are only a little way behind him, he explains. As for the others, he does not know. But the tide is ebbing. No boats will be sailing that evening for the port of London. Instead, the small party hires horses and hurries along the king's highway to the Bull at Dartford. There, they set off directly for Chalkdale, 'a place packed with many rare plants, because stones had once been quarried here for making quick lime. We found it now decked with grass and many beautiful plants,' writes Johnson. Lady's bedstraw, clustered bellflower, rich mahogany fly orchids, and lesser bugloss are added to their now rather impressive list of plants discovered in the county of Kent.

That night they dine with Richard Wallis, 'preacher of divine grace', who refreshes them with a lavish supper and takes them plant-hunting in his paddock. The next morning, the reduced party sets out by way of the public footpath to Erith, where they hire a boat to take them upriver to London. On the way, they pass three ships, recently returned from the East Indies. They are invited on board, and Leonard Buckner, who later will become Master of the Society of Apothecaries, is presented with 'a big Indian nut, a piece of sugar cane and an Indian bamboo'. After that, writes Johnson, 'We left the ship and crossed the most famous bridge in the British world; then we were told that our Fellows had got back and where they now were.' The waggon party, they learn, had travelled in great style through Hoo to Rochester, where Anthony Allen, the first Mayor of Rochester under its new charter granted that same year, had provided a 'sumptuous repast'. They had eaten lamb prepared in a new fashion and caroused merrily with John Larkin, prebendary of Rochester Cathedral. A most satisfactory trip, agree the reunited fellows. They have found about 270 plants that have never previously been recorded in Kent. Nearly half of these are first records for Britain. So they plan a further outing: a journey in August by horseback to the wilds of Hampstead Heath.

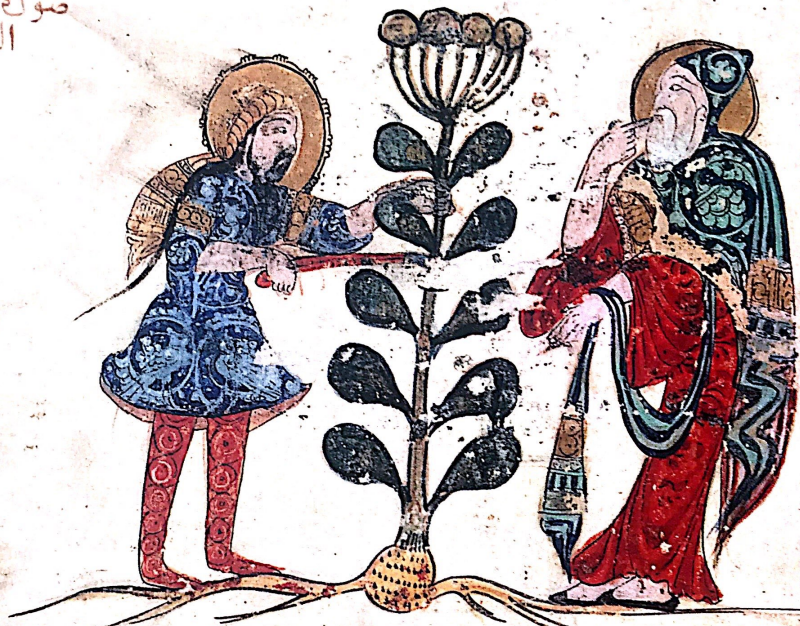
I am riding with Kazakh horsemen through the Tien Shan mountains of Central Asia. It is late April and a storm has passed briefly through the snowy peaks. Now

the sun is shining again and a rainbow hangs out over the great flat plain below us. The plain, littered with failed enterprises of the Soviet era – broken irrigation channels, fractured gas pipes, ruined factories – stretches from the foothills of the Tien Shan northwards to the beginnings of the next great range of mountains, the Karatau, which we can see, spiky and stark against banks of white cloud. Steam is rising from the narrow flanks of the grey-spotted horse in front of me and from the rough canvas saddlebags slung over its rump. My saddle is a bright velvet cushion, packed on top of a boat-shaped metal frame. The rein is a plaited braid and red rags are tied either side of the horse's head on the rope cheek-straps of its bridle. Passing over the flat, grassy plain between the village and the foothills, the horses have moved briskly, jumping with an odd rocking-horse motion over the narrow streams that run through the pasture. Now the going is steep and rough, not a track that I can see, so I concentrate on the way the horse in front of me is weaving in and out of low mounds of evergreen juniper, skirting vast boulders, slithering down muddy banks to cross yet more streams, swollen now by the rain. Occasionally the horses disturb red-legged chukar partridges; like mechanical, wind-up tin toys, they whirr up over the junipers on fast, noisy wings.

Water drips from the rim of the Kazakh horseman's hat, built like a fisherman's sou'wester, curved up in front, with a brim that sweeps down low over the nape of his neck at the back. It is made from thick pads of felt, the same kind of felt that covered the shepherd's yurt we've passed, pitched ready for summer on the slopes of the mountain. Rounding a bluff, we emerge on a plateau where, crammed over the ground, more tightly than the stitches of a Kazakh carpet, are mahogany-coloured fritillaries, blue iris, crocus the blue-white colour of icebergs, yellow junos, sheets of tulips with snakeskin-mottled leaves, low bushes of pink flowering cherry, alliums, patches of violet, spears of eremurus emerging like red-hot poker from elegant sheaves of leaf, brilliant explosions of giant fennel spun from thread as fine as green silk, purplish-magenta vetches, corydalis, arching plumes of Solomon's seal, arrow-shaped arums. I know all these plants and can give them names because there is scarcely a plant lover in the Western world who has not tried to grow them, tried to persuade them that a bed of damp clay and a summer of cloud and drizzle is a fair exchange for life out here on the shale-strewn slopes of the great Tien Shan mountains where summers are hot enough to burst a thermometer. These plants are flamboyant, irresistible superstars of the plant world, destined since man first set eyes on them for a stage far wider than the corner of Central Asia that Nature chose for them. After the fall of Constantinople in 1453, and the appearance of European embassies in the capital of the new Ottoman empire, the way was clear for these Eastern plants to be introduced into Europe, which they were, in increasingly large

الصف الرابع الذي يقال له الموش موش قاله ورق شبيه  
 بورق الاخر غير انه قريب الشغل من ورق بقله الجمفا الا انه اذ  
 منه واشدا سخنا وله قضبان اربعة او خمسة يخرجها من اضل

صوت  
 الرابع



واحطوطها حوم من شبر ذاق مملو من لبن وله رائس شبيهه براس  
 الشبت ومركانه موضوع في روض وجهه هذا النبات  
 تنقل مع اسقال الشين ولذلك سمي البوسقويون ومعناه

numbers. In the hundred years between the mid-fifteenth and the mid-sixteenth centuries, twenty times as many plants entered Europe from the East as had arrived in the previous 2,000 years together. Moving along the Silk Road, the long-established route by which merchants transported valuable goods from Eastern producers to Western consumers, lilies, fritillaries, hyacinths, anemones, turban ranunculus, crocuses, iris and tulips from these same mountains had travelled with bales of silk through Tashkent, Samarkand, Bukhara, Turkmenistan, then on to Baku and Jerevan before arriving at Constantinople, the springboard for entry into the countries of Western Europe.

While my horse grazes with finicky care between the gageas and the wild roses, I'm thinking of those baggage trains, the saddlebags, the hand-made harnesses, the yurts put up and dismantled, the fires built against bears and wolves, and the practicalities of carrying plants, intact, so far from their natural habitats. They survived, of course, because the best of the plants, the most desirable and dazzling flowers, were bulbs. Once they had flowered, they rapidly gathered their resources back into themselves and rested underground for the summer, protected from the heat by the stony soil lying over them. During these months of dormancy, bulbs could be carried long distances without any harm, perfectly packaged, growth suspended. Like the silk that gave its name to this great trade route, they were high-value, low-volume goods, worth a merchant's trouble.

Alexander, the horseman, has been gathering mushrooms, field blewits, that bulge up like pale creamy stones between the flowers. Shouting, he points now to an impressive mound of fresh dung piled up by a clump of wild tarragon. Bear, he says, a bear that has breakfasted on juniper berries and lunched on rhubarb. He thinks it must have spent the winter in the cave above us, a dark hole framed by a sweep of *Fritillaria sewerzowii*, now in full bloom. This flower, which European gardeners find one of the most rare and strange and difficult of its family to grow, is here filling a bear's front garden. It is spread as thickly as nettles, throwing up stems of whorled glaucous leaves studded with bells of a bizarre and intensely desirable yellowish khaki.

My horse is moving to join Alexander's through a big patch of yellow Juno iris, squashing them under its unshod hooves. 'Sorry,' I say to the flowers, as they lie crushed in their sheaves of wide, white-rimmed leaves, 'I'm so sorry.' I've seen this iris only once before, at the Royal Botanic Gardens, Kew, a single bloom held reverently in front of me in a clay long tom pot, cultivated by the one man in England who has the skill to persuade it to flower. 'Iris,' I say to Alexander, who speaks Kazakh with a bit of Russian on the side. 'Ukrop,' he replies, 'Ukrop.' It's the flower's local name. '*Iris orchoides*,' I say, more to myself than him, for that is its botanical name and surname, its passport out of Kazakhstan. With this tag round its neck,

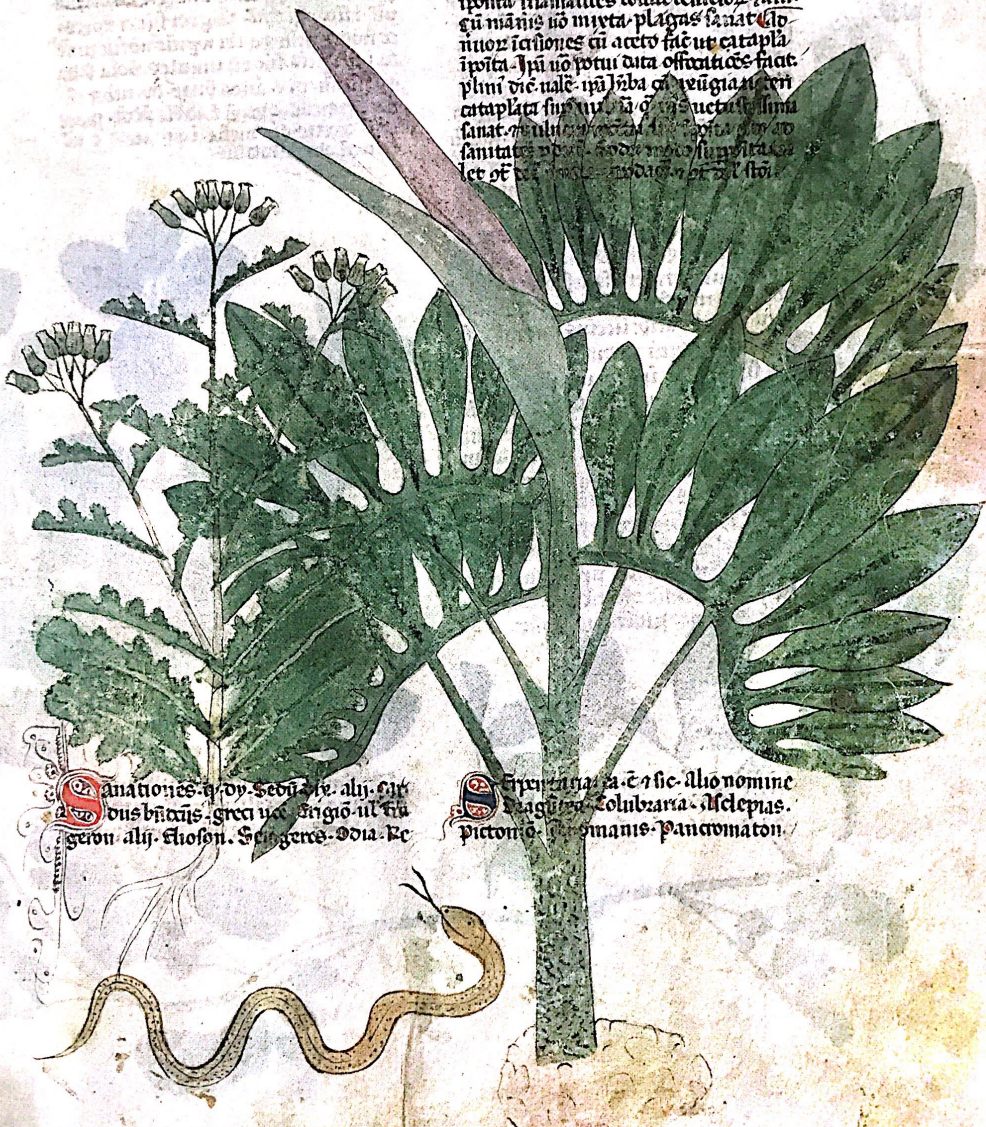
assigned by the French taxonomist Ebie-Abel Carrière in 1880 (he'd seen it growing in a nurseryman's collection and published the first description of it in the *Revue Horticole*), it can pass through the hands of Spaniards, Belgians, Americans, Australians, Brazilians and Japanese, who will all recognise it as one particular species, with special characteristics that separate it from other Central Asian irises such as *I. tien-shanica* and *I. bucharica*. From medieval times onward in Western Europe, Latin was the language of the written word, understood equally well in France, Italy, England or the Netherlands. The Latin names applied to plants in the first written herbals were gradually honed over the next 300 years into a special botanical language, a kind of Latin Esperanto, understood by anyone, anywhere in the world, who is interested in plants. The tag, of course, is meaningless to the plant itself, which, as for millions of years past, responds only to external stimuli: light, darkness, warmth, cold, moisture, drought, horses' hooves. It's not of much interest to Alexander either; he's spent his whole life so far in Dzhabagly, the village on the plain below and is likely to spend the rest of it in the same place. The common names by which he knows at least 80 per cent of the plants in the mountains are the most useful in this community. My pear is their *grusha*. My nettle is their *krapiva*. My tulip is their *kyskaldak*. The mushrooms he has been collecting are *sinenozhka* and that local name is all he needs to signify that these fungi are not poisonous and that, being delicacies in the area, he will be able to sell them for a good price to his neighbours.

But what was the process by which all these fabulous plants found new, universally understood names after they had arrived in foreign lands, far from home? Passed from merchants to ships' captains, from travellers to nurserymen, from diplomats to noblemen, from missionaries to monks, moving from Central Asia to Pisa, Padua, Provence, Paris, Leiden, London they will have lost their common names, their local identities. And yet they must have names, if only for practical reasons. Many plants were brought into Europe for medicine, to increase the range and effectiveness of the druggist's pharmacopoeia. Most medicines came from herbs ('simples' they were called) and new ingredients promised the hope of new cures, provided the ingredients were true to name. A plant's pharmaceutical value depended on the plant-hunter's ability to distinguish one botanical species from another; its economic value would increase in equal measure.

But apothecaries worried that they were often duped with substitutes, plants that were more easily obtained than the real thing, which is why Thomas Johnson and his friends undertook their plant-hunting journey into Kent. It was the first of a series of expeditions they planned into different areas of the country, collecting the wild plants they saw, noting their characteristics and known uses and trying, for the

ut ei omnib; spūalia mūdificat. Fomē  
 tu ex aqua salis et oleo taccatois em. ualer  
 ad yllac. tol. thagur. et dif. In uno etia  
 etc. et cataplāte ad iter. ualer. dy. Erudū  
 comestū cauculos excludit. vrinā pūat  
 astruis hinc. Dissiterit pest. Antebas  
 sapiēs et hinc pūet testimonio.

gentia. vialij. Sellione. Nasa. Et tectis  
 et sic. Petris. folia hē unidia densa et silia q̄  
 ai. si se grossioza et pigua. turū. Vnū  
 capi. tella. hūitate turū. hīs. modū. ditē  
 le. Vires hē. hīgētes et refrigerātes et ead  
 p̄stātes q̄ et plāgo. folia ei hū. sē q̄ ai flo  
 nū. suis. cataplāte. ai. uno. dī. facta. et  
 iposita. islam. nō. tollit. test. clor. et an  
 cū. māns. nō. myxa. plagas. sanat. Ad  
 nuoz. icā. siones. ai. aceto. fac. ut. cataplā  
 iposita. In. uo. totū. dūta. officinā. et. facit  
 plini. die. uale. in. hū. bā. et. vū. gū. et. ten  
 cataplāte. sup. hū. dū. q̄. suctū. hū. hū  
 sanat. et. vū. hū. et. hū. et. hū. et. hū. et  
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**S**anationes. q̄. dy. Sedū. dy. alij. Cit  
 dus. hū. tū. greci. uox. hū. gū. ul. tū  
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**S**erpentina. et sic. Alio nomine  
 Lagū. Colubriana. Asclepias.  
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first time, to establish some kind of agreement as to what plants grew in Britain and what they should be called.

This naming of names was a process that had been going on in Italy and France for some time before it happened in England; Johnson's journey and the motive behind it had been inspired by the young Italian botanist Ulysse Aldrovandi's expedition to the Sibylline mountains in 1557, the first journey ever undertaken in Europe with the aim of recording the plants of a specific area, creating, in effect, a local flora. Aldrovandi, of course, would not have called himself a botanist. The word did not appear in print until more than a century after his Sibylline adventure. The study of plants was, however, intimately connected with the study of medicine. A sixteenth-century apothecary, surgeon or doctor had necessarily to be a plantsman. Aldrovandi, who had studied at Bologna under the great teacher, Luca Ghini, was part of a pan-European network, an information exchange, a sixteenth-century internet that connected all those interested in a better understanding of the natural world. By introducing a system of nomenclature, they tried to bring order to that world, setting alongside the common names a set of Latin names, agreed by gradual consensus, advanced by contact with other enquirers in other countries, a system that could be universally understood. Already, in his early thirties, Aldrovandi was in touch with an influential Spanish pharmacist, Bergaso; he exchanged information with Bishop Rossano, the papal envoy to Philip II in Madrid, and with Micon de Viez, a doctor in Barcelona. He started a seed exchange with Philip Brancion, director of the botanic garden at Malines in France. In 1578 he sent Grand Duke Francesco I de' Medici, who had a famous garden at Pratolino, a drawing of a dramatic orange crown imperial (*Fritillaria imperialis*) which had only just arrived in Europe from the East. The development of a logical system by which the natural world could be organised was intimately linked to this European network of scholars and their patrons, the noblemen and landowners, all of whom communicated in a common language, Latin.

But alongside this practical, pharmaceutical reason for wanting to pin the right labels on things was another wider imperative: the desire to make sense of the natural world that was one of the defining characteristics of the Renaissance. Gradually, the active, the secular, gained precedence over the religious, contemplative mode that had defined the Middle Ages in Europe. The spirit and culture of this new age encouraged classical scholarship, scientific discovery, geographical exploration, a sense of the potential of the human mind. Art escaped from its religious straitjacket. As a more rational, scientific mode of thought developed, the study and classification of the natural world became a driving force in, and an essential part of, the early Renaissance. The hardships of the fourteenth century – harsh winters, food shortages, a series of plagues – were subsumed in a movement towards



empirical research, characteristic of the first half of the fifteenth century; it marked a new dimension in man's relationship with nature. Fruitful links developed between botanists, herbalists, landowners, farmers and diplomats travelling in Europe and Asia. The Venetian ambassador, Andrea Navagero, travelling on horseback between Barcelona and Seville, made detailed notes on the crops being grown there by Arab farmers. The patrician Pietro Antonio Michiel, born in Venice in 1510, cultivated a fine garden on the island of San Trovaso in Venice. He received plants from Venetian ambassadors serving in Constantinople and Alexandria. He had contacts in Dalmatia, Crete and the Levant. He was in touch with merchants from France, Germany and Flanders whose business brought them to Venice. As so much European trade passed through Italian ports, it was not surprising that Italy should dominate the first phases of the search for order in the plant world; soon, though, information began to flow freely from scholars based round the Mediterranean to those of Northern Europe, linking Venice, Florence, Provence with Paris, Leiden and London.

Of course, printing, when it was invented (the first text to be produced by the new process was the indulgence printed at Mainz in 1454), had a cataclysmic effect on the spread of knowledge. Up till that point, information was a personal asset or property, passed at its owner's discretion from hand to hand, by word of mouth or by letter. Each person in possession of information could add or subtract from it before passing it on. The printed book changed the way information was received. It sent the same message to all. It was not necessarily the right one, but it set an agenda; it was a fixed point from which the fight for elucidation could continue.

The earliest printed plant book, a German herbal, appeared within thirty years of Gutenberg's great invention, but the first bestseller, the first new printed herbal to be read throughout Europe, was written in 1530 by Otto Brunfels, a Carthusian monk turned Lutheran schoolmaster (and also the town doctor of Berne). The key to the book's success was not the words, mostly cobbled together from the classical texts of Theophrastus and Dioscorides, but the woodcuts contributed by Hans Weiditz, draughtsman and engraver. Unlike Brunfels, he was not a copyist. He drew the plants in the herbal direct from life. He created the first printed images, of water lily, nettle, plantain, liverwort, vervain, lesser celandine, borage, wood anemone, pasque flower, that could be unequivocally recognised throughout Europe. Artists, not writers, paved the way for the botanical Renaissance in Europe.

Weiditz's model and tutor was the master of the German Renaissance, Albrecht Dürer. 'Be guided by nature,' his mentor had written. 'Do not depart from it, thinking that you can do better yourself. You will be misguided, for truly art is hidden in nature and he who can draw it out possesses it.' Dürer's flower studies are astonishingly realistic snapshots of the natural world, taken straight from the field, the



Plate 6: An iris (*Iris germanica*) captured in watercolour, almost life-size, by Albrecht Dürer c.1503

plants botanically accurate in every detail – the corrugated leaf of a primrose, the small horned spurs of an aquilegia – but different in their natural groupings from the botanical specimens captured by Weiditz. In Italy, Leonardo da Vinci had already been experimenting with physiotypes, which were like woodcuts made without either wood or cutting. Coating leaves with the soot produced by a candle flame, he pressed them on sheets of paper to make carbon copies showing the intricate system of veins and ribs supporting the leaves. The sixth part of his *Treatise on Painting* is a study of plants, the structure of their roots, branches, bark, flowers, leaves.

So, aided by artists, the botanists and naturalists of the Renaissance set out along the long road towards consensus in the naming of names. Botanic gardens were established at Pisa, Padua and Bologna. Disaffected Protestants, barred from studying at the University in Paris, swept out of Antwerp by Philip II of Spain and his Catholic crusades, finding themselves suddenly on the wrong side of the religious fence in England, gathered at the famous medical school at Montpellier in the south of France, exchanged information, dispersed, and later established new centres of excellence in Northern Europe. Two hundred thousand Huguenots, who in Flanders had established themselves as particularly knowledgeable and gifted growers and nurserymen, left France to settle in Switzerland, Germany, England and the Netherlands. Out of this persecution came progress, as the floods of immigrants swirling through Europe brought with them fresh information about plants and created webs of knowledge. Entrepreneurs such as the French nurseryman Pierre Belon brought news from outside Europe; between 1546 and 1548 he was in the Levant and the account he published of his journey and the things he had seen increased the desire of European gardeners to own for themselves the fabulous plants, many of them bulbs, that he described. But with each new wave of introductions from abroad, the pressure to sort, describe, and organise plants into a rational system of nomenclature increased. When plants began to pour in from the newly settled lands of America, the task became even more urgent. The Spaniard Nicolas Monardes was the first to describe the cornucopia of hitherto unknown plants that grew in this uncharted territory and already by 1577 his book, which included reports of novelties such as sunflower and tobacco, had been translated into English as *Joyfull newes out of the newe founde worlde*. The business of naming plant names, which had begun in a desultory fashion with the Greek philosopher Theophrastus in the third century BC, occupied the best minds in Europe. This is their story.